Space Science Seminar
Tuesday, 2016 February 23
10:30 a.m.
NSSTC/2096

Setting the Stage for the Era of Gravitational Wave Discovery

Dr. Wen-fai Fong / Department of Astronomy, University of Arizona
Host: Dr. Colleen Wilson-Hodge (sponsored by ZP12)

The first advanced gravitational wave detectors are newly operational and will bring one of the most anticipated discoveries of the century: the direct detection of gravitational waves. The premier gravitational wave sources are the mergers of two compact objects, involving either two neutron stars, or a neutron star and a black hole. While the gravitational wave signal will give insight to the basic properties of compact objects, a coincident detection at electromagnetic wavelengths will significantly leverage the event by providing precise sky localization and an association to a galaxy. The main challenge will be how to identify the correct electromagnetic counterpart amidst an otherwise dynamic sky. In this talk, I present ongoing efforts to characterize the electromagnetic signatures from compact object mergers. In particular, I present observational evidence linking mergers to two distinct counterparts: short-duration gamma-ray bursts (GRBs) and long-lived transients powered by the nucleosynthesis of heavy elements ("kilonovae"). Such observations are crucial in setting the stage for the upcoming revolutionary era of gravitational wave discovery.

http://solarscience.msfc.nasa.gov/colloquia/